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1 1. A method of controlling a data head for reading data  
2 from a data track on a magnetic tape in a magnetic tape drive,  
3 comprising:  
4 determining signal quality for read data signals  
5 produced by a data head reading data from a data track; and  
6 adjusting the position of the data head relative to the  
7 data track using the signal quality.

1 2. The method of claim 1, wherein adjusting comprises:  
2 performing a seek operation that includes changing the  
3 position of the data head and determining changes in the  
4 signal quality corresponding to the changes in data head  
5 position until a predetermined level of improvement in the  
6 signal quality is achieved.

1 3. The method of claim 1, wherein changing the position of  
2 the data head comprises:  
3 stepping of the data head laterally across the data  
4 track.

1 4. The method of claim 3, wherein performing the seek  
2 operation further comprises:  
3 using the determined changes to determine direction and  
4 size of steps of the stepping.

1 5. The method of claim 4, wherein performing the seek  
2 operation further comprises:  
3 comparing each of the determined changes to a lower  
4 threshold; and  
5 comparing a current number of steps taken by the seek

6 operation to a maximum number of steps.

1 6. The method of claim 5, wherein adjusting further  
2 comprises:

3 maintaining the data head at a current position without  
4 stepping when results of the comparison indicate that the  
5 determined change is below the lower threshold and the current  
6 number of steps taken exceeds the maximum number of steps.

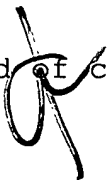
1 7. The method of claim 6, wherein the lower threshold  
2 comprises a hysteresis value.

1 8. The method of claim 6, wherein adjusting further  
2 comprises:  
3 monitoring the signal quality while maintaining the  
4 data head at the current position to detect any changes in the  
5 signal quality greater than the lower threshold; and  
6 if any changes greater than the lower threshold are  
7 detected, repeating performing the seek operation.

1 9. The method of claim 6, wherein adjusting further  
2 comprises:  
3 determining that the data head has been maintained at  
4 the current position without stepping for a period of time in  
5 excess of a predetermined maximum re-seek time threshold; and  
6 repeating performing the seek operation.

1 10. The method of claim 1, wherein determining comprises:  
2 obtaining the signal quality values from a read channel  
3 device.

1 11. The method of claim 1, determining comprises:



2 generating the signal quality values for data read from  
3 a data track.

1 12. The method of claim 1, wherein the signal quality  
2 comprises error values.

1 13. The method of claim 12, wherein the error values are  
2 indicative of errors between observed values and ideal values for  
3 the read data.

1 14. An apparatus for controlling a data head to read data  
2 from a data track on a magnetic tape in a magnetic tape drive,  
3 comprising:

4 a stored computer program in memory instituting the  
5 steps of:

6 determining signal quality for read data signals

7 produced by a data head reading data from a data track; and

8 adjusting the position of the data head relative to the  
9 data track using the signal quality.

1 15. A tape drive system comprising:

2 a data head structure to produce read data signals from  
3 data recorded on a data track of a tape;

4 a head stepper coupled to the data head structure;

5 a data channel unit to produce read data signal quality  
6 values from the read data signals; and

7 a servo controller coupled to the head stepper and the  
8 data channel unit, the servo control being configured to use  
9 the signal quality values to control adjustment of the  
10 position of the data head structure relative to the data track  
11 by the head stepper.